

CHAPTER 4: DATA ANALYSIS

4.0 INTRODUCTION

This chapter presents the results of data analyzed from questionnaires administered. A sample of 400 subscribers of telecommunication giants Vodafone and MTN was used for the analysis. All variables were coded using a scale (1-7), where 1=strongly disagree and 7= strongly agree. Statistical analyses performed included descriptive statistics, reliability analysis, correlation matrix, regression analysis and one-sample t-test (using 4=neutral as benchmark for comparison). The main goal of the research was to determine the extent of practice of service quality among the telecommunication giants and its impact on customer loyalty. The research hypotheses are as follows:

H1: Service delivery will have an overall positive impact on customer loyalty

H2: There is a significant positive relationship between tangibility dimension of service delivery and customer loyalty

H3: There is a significant positive relationship between responsiveness dimension of service delivery and customer loyalty

H4: There is a significant positive relationship between empathy dimension of service delivery and customer loyalty

H5: There is a significant positive relationship between assurance dimension of service delivery and customer loyalty

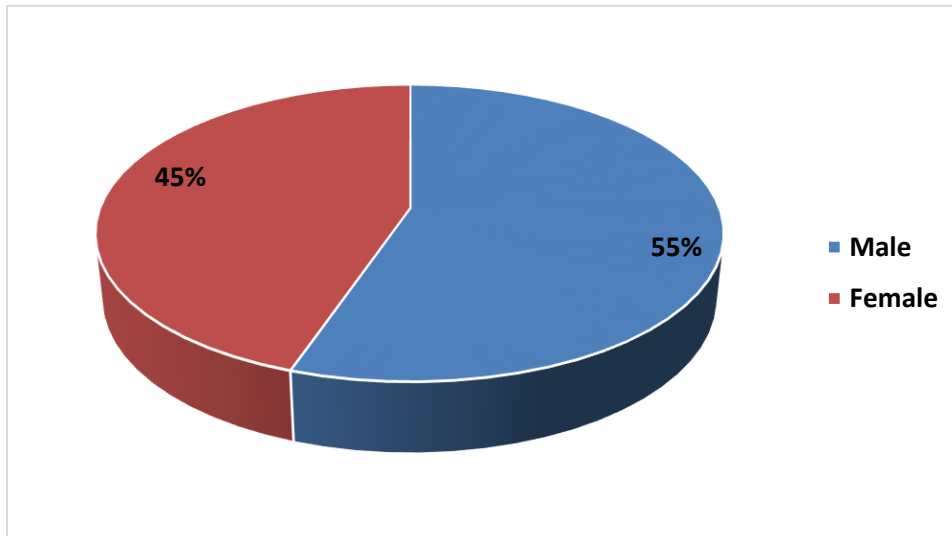
H6: There is a significant positive relationship between reliability dimension of service delivery and customer loyalty

4.1 BACKGROUND INFORMATION

Gender of respondent

Most of the respondents representing 55% were males and the rest (45%) were females as presented in figure 4.1.

Figure 4.1: Gender of respondent

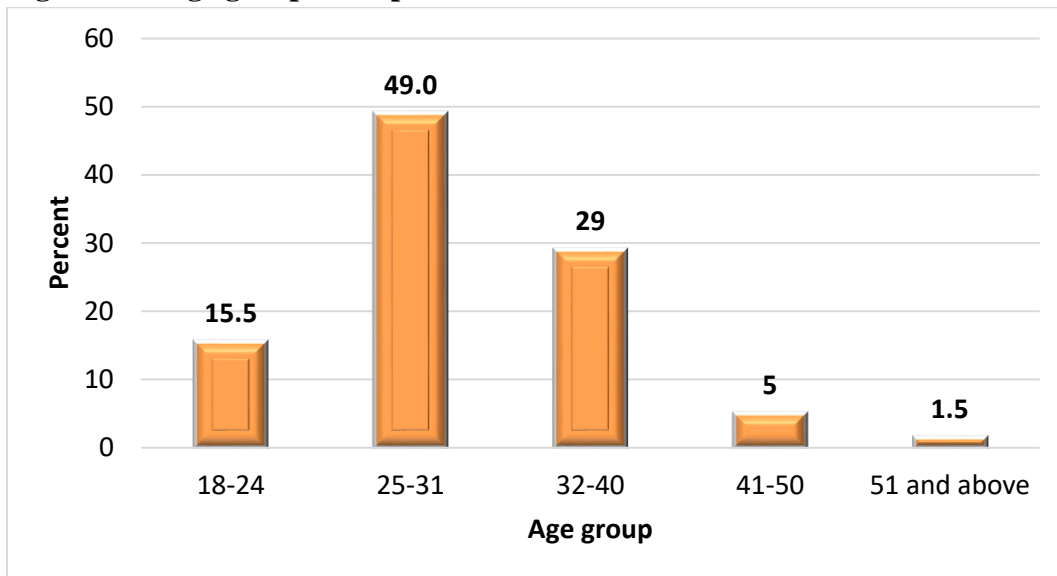


Source: Field Data, 2017

Age group of respondents

A significant proportion (49%) of the respondents were between the ages of 25 and 31 years. Those who were between the ages of 32 and 40 years (29%), 18 and 24 years (15.5%), 41 and 50 years (5%) and 51 years and above (1.5%) respectively follow this. See figure 4.2.

Figure 4.2: Age group of respondents

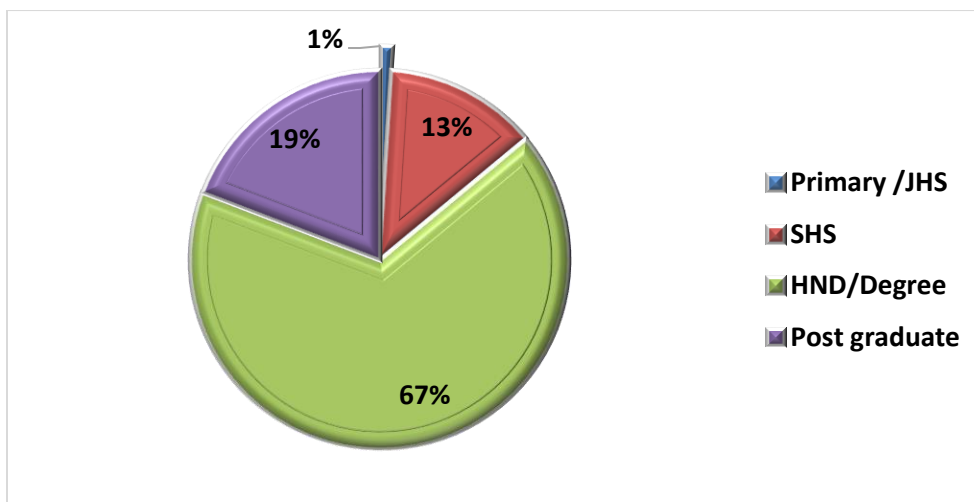


Source: Field Data, 2017

Level of education of respondents

Most (67%) of the respondents were HND/First Degree holders; this is followed by Post-Graduates (19%), SHS graduates (13%) and Primary/JHS graduates (1%) respectively as presented in figure 4.3.

Figure 4.3: Level of education of respondents

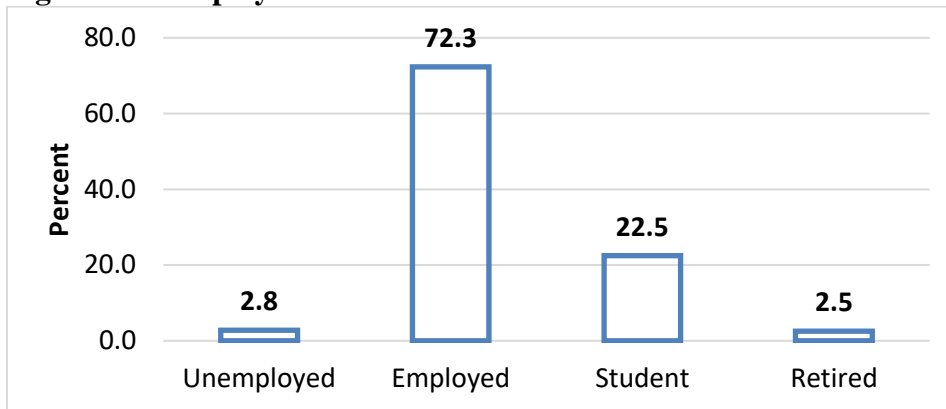


Source: Field Data, 2017

Employment status

Seven in ten (72.3%) respondents were employees of various organizations; students (22.5%), the unemployed (2.8%) and retired professionals (2.5%) respectively, follow this. See figure 4.4 for details.

Figure 4.4: Employment Status

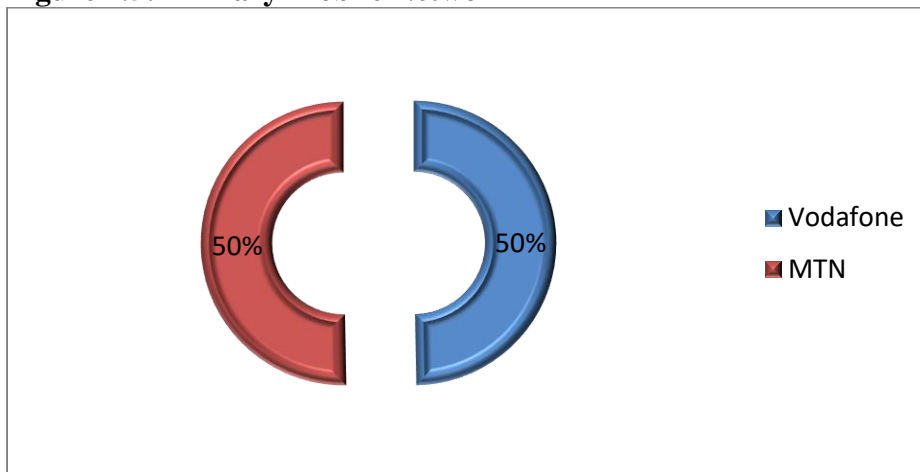


Source: Field Data, 2017

Primary mobile network

Half of the respondents were subscribers of Vodafone (50%) whereas the other half were subscribers of MTN (50%) as shown in figure 4.5.

Figure 4.5: Primary Mobile Network



Source: Field Data, 2017

4.2 EXTENT OF PRACTICE OF SERVICE QUALITY- EXPLORATORY FACTOR ANALYSIS (EFA), RELIABILITY ANALYSIS, DESCRIPTIVE STATISTICS AND T-TEST

4.2.1 Exploratory Factor Analysis with Varimax Rotation

Before performing regression analysis, it is important to assess the underlying variables that define the practice of service quality in order to determine its impact on customer loyalty. To do so, exploratory factor analysis (EFA) was performed on the 25-item questionnaire scale followed by a Varimax rotation. The results generated six factors presented in table 4.1. A Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy value of 0.868 was obtained as well as a Bartlett's Test of Sphericity of (approx. Chi-square=6896.41, df=300, p=0.000). These results show that the sample is adequate for factor analysis and that variables correlate well. The six factors generated accounted for about 67.34% of the variance in the original data.

Table 4.1: EFA with Varimax Rotated Component Matrix

Factors and variables	Loadings
Factor 1/(Reliability)	
The operating hours of the network is convenient to me	0.682
My service provider services are dependable	0.657
The service coverage areas are undeniably the best	0.684
The calls, SMS and data charges are affordable	0.802
My service provider is committed to service innovation	0.58
Factor 2/(Empathy)	
My service provider is sympathetic and reassuring to its customers	0.657
Employees of the network understand my needs	0.569
The process for handling complains is easy	0.624
Factor 3/(Assurance)	
My service provider is able to inspire confidence	0.815
My service provider keeps it promise to its services	0.711
Customers can trust employees to excellent services	0.768
Employees are well equipped to carry out their duties	0.616
Factor 4/(Responsiveness)	
They prompt services to my needs	0.655

My service provider is able to resolve my complaints within 24hrs	0.663
Their employees are very polite and courteous when responding to my needs	0.72
Employees are knowledgeable when it comes to the service they offer and are able to explain them extensively.	0.752
My service provider is swift in responding to my complaints	0.685
Factor 5/(Tangibility)	
My service provider has modern facilities and equipment	0.521
My service provider has beautiful offices and corporate branding images	0.627
Their employees appear well dressed and neat	0.805
Their corporate colors is catchy	0.809
Factor 6/(Customer Loyalty)	
I intend to continue using my network services for a long time	0.808
I will encourage friends and relatives to use the services of my network provider	0.808
I will still prefer my service provider to any other service provider offering similar services as my network	0.538
My service provider is my first network of choice	0.637

KMO=0.868; Barlett's Test Chi-square=6896.41, df=300, p=0.000; Total variance explained=67.34%

Source: Field Data, 2017

The first five factors related to service quality dimensions of reliability, empathy, assurance, responsiveness and tangibility respectively. The sixth factor relates to customer loyalty.

4.2.1 Reliability Analysis

Cronbach alphas allow us to measure the reliability of different variables. It consists of estimates of how much variation in scores of different variables is attributable to chance or random errors (Selltiz et al, 1976). As a general rule, a greater coefficient than or equal to 0.7 is considered acceptable and a good indication of construct reliability (Nunnally, 1978). However, values lower than 0.7 may be acceptable for exploratory research. Hair, Anderson, Tatham, & Black, (1998) recommend a cut-off point of 0.6 as the lower limit of acceptability.

Responses obtained from the research were very reliable as presented in table 4.2. High Cronbach alphas were obtained for reliability (0.847), empathy (0.825), assurance (0.860), responsiveness

(0.859), tangibility (0.763) and brand loyalty (0.867). Therefore, the results indicate high internal consistency of the construct measures.

Table 4.2: Reliability Analysis

Service Quality Constructs	Number of items	Cronbach's Alpha
Reliability	5	0.847
Empathy	3	0.825
Assurance	4	0.860
Responsiveness	5	0.859
Tangibility	4	0.763
Brand Loyalty	4	0.867

Source: Field Data, 2017

4.2.2 Service Quality Dimensions

A mean of five or higher (5=Fairly agreed) was obtained for service quality dimensions of reliability, empathy, assurance, responsiveness and tangibility. This means on the average, the respondents fairly agreed that the service quality dimensions of reliability, empathy, assurance, responsiveness and tangibility are present in the management practices of telecommunication companies in Ghana. All the five dimensions of service quality were statistically significant ($p < 0.01$). These results imply that the telecommunication companies practice service quality largely.

Comparatively, the most evident of the service quality dimensions is tangibility (has highest mean value=5.75). This is followed by reliability, responsiveness, empathy and assurance respectively. See table 4.3 for details.

Table 4.3: Service Quality dimensions-Descriptive Statistics and t-test

Service Quality constructs	Mean	SD	t	p
Reliability	5.37	0.99	27.75	0.00**
Empathy	5.17	0.96	24.39	0.00**
Assurance	5.07	0.96	22.36	0.00**
Responsiveness	5.30	0.97	26.80	0.00**
Tangibility	5.75	0.83	42.07	0.00**

Note: **significant at $p < 0.01$

Source: Field Data, 2017

4.3 IMPACT OF SERVICE QUALITY ON CUSTOMER LOYALTY- CORRELATION MATRIX AND REGRESSION ANALYSIS

Our analysis examines the effects of service delivery on customer loyalty in the telecommunication sector. To do so, correlation matrix and regression analyses were performed to determine the nature of the relationship that exists between service quality and customer loyalty.

4.3.1 Correlation Matrix

Correlation analysis examines the relationship that exists between the construct measurements without controlling for each other. Table 4.4 shows that the correlations between the dimensions of service quality and customer loyalty were all positive and significant ($p < 0.01$).

Table 4.4: Relationship between Service Quality dimensions and Customer Loyalty-Correlation Matrix

Measurement constructs	1	2	3	4	5	6
1. Reliability	1.00					
2. Empathy	0.56**	1.00				
3. Assurance	0.58**	0.63**	1.00			
4. Responsiveness	0.54**	0.68**	0.57**	1.00		
5. Tangibility	0.19*	0.40**	0.31**	0.50**	1.00	
6. Brand Loyalty	0.73**	0.45**	0.53**	0.34**	0.37**	1.00

Note: **significant at $p < 0.01$; * significant at $p < 0.05$

Source: Field Data, 2017

4.3.2 Regression Analysis

Regression analysis examines the relationship that exists between the independent variables made dimensions of service quality and the dependant variable-customer loyalty (composite scores), by controlling for each other in the model.

Table 4.5 reveals a significant positive relationship between the dimensions of service quality and customer loyalty ($F=131.57$, $p<0.001$). This means reliability, empathy, assurance, responsiveness and tangibility jointly determine customer loyalty. An adjusted R-Square of 0.608 shows that reliability; empathy, assurance, responsiveness and tangibility jointly determine about 60.8% of the variance in customer loyalty.

Comparatively, the biggest determinant of customer loyalty is reliability ($\beta=0.68$). This is followed by responsiveness, tangibility, assurance and empathy respectively. With the exception of empathy, all the remaining four dimensions had significant positive effects on customer loyalty.

Table 4.5: Regression results for Service Quality and Brand Loyalty

Variable	B	β	S.E	t	Prob.
Constant	0.01		0.26	0.02	0.98
Reliability	0.72	0.68	0.04	16.57	0.00**
Empathy	0.06	0.06	0.05	1.20	0.23
Assurance	0.21	0.19	0.05	4.43	0.00**
Responsiveness	0.32	0.30	0.05	6.32	0.00**
Tangibility	0.29	0.23	0.05	6.40	0.00**
S.E of estimate	0.653				
R-Square	0.613			F-statistic	124.85
Adj. R-square	0.608			Prob.(F-stats.)	0.00**

Note: **significant at $p<0.01$

Source: Field Data, 2017

The regression equation on the above results is as follows:

Let Y=Customer Loyalty

X₁= Reliability

X₂= Empathy

X₃= Assurance

X₄= Responsiveness

X₅= Tangibility

E= Error Term

Then:

$$Y = 0.01 + 0.72X_1 + 0.06X_2 + 0.21X_3 + 0.32X_4 + 0.29X_5 + E$$

Or simply;

$$Y = 0.01 + 0.72X_1 + 0.21X_3 + 0.32X_4 + 0.29X_5 + E \text{ (Since empathy is non-significant)}$$

4.3.3 Hypotheses Testing

H1: Service delivery will have an overall positive impact on customer loyalty

As indicated earlier in the regression section, a significant positive relationship exists between the dimensions of service quality and customer loyalty ($F=131.57$, $p<0.001$). This implies that service delivery has an overall positive effect on customer loyalty. In other words, effective service delivery in the telecommunication industry promotes customer loyalty. Therefore hypothesis 1 (**H1**) is supported in the present context. See table 4.5 for details.

H2: There is a significant positive relationship between tangibility dimension of service delivery and customer loyalty

A strong positive relationship was obtained between the tangibility dimension of service quality and customer loyalty ($\beta=0.23$, $t=6.40$, $p<0.01$). This implies that customer loyalty is strongly

driven by tangibility. Specifically, about 5% ($0.23*0.23*100\%$) of the variance in customer loyalty is explained by tangibility. Therefore hypothesis 2 (**H2**) is supported in the present context. See table 4.5 for details.

H3: There is a significant positive relationship between responsiveness dimension of service delivery and customer loyalty

A strong positive relationship was obtained between the responsiveness dimension of service quality and customer loyalty ($\beta=0.30$, $t=6.52$, $p<0.01$). This implies that customer loyalty is strongly driven by responsiveness. Specifically, about 9% ($0.30*0.30*100\%$) of the variance in customer loyalty is explained by responsiveness. Therefore hypothesis 3 (**H3**) is supported in the present context. See table 4.5 for details.

H4: There is a significant positive relationship between empathy dimension of service delivery and customer loyalty

The relationship between the empathy dimension of service quality and customer loyalty in the telecommunication industry is not statistically significant ($p=n.s.$). Therefore hypothesis 4 (**H4**) is **not** supported in the present context. See table 4.5 for details.

H5: There is a significant positive relationship between assurance dimension of service delivery and customer loyalty

A strong positive relationship was obtained between the assurance dimension of service quality and customer loyalty ($\beta=0.19$, $t=4.43$, $p<0.01$). This implies that customer loyalty is strongly driven by assurance. Specifically, about 3.6% ($0.19*0.19*100\%$) of the variance in customer

loyalty is explained by assurance. Therefore hypothesis 5 (**H5**) is supported in the present context. See table 4.5 for details.

H6: There is a significant positive relationship between reliability dimension of service delivery and customer loyalty

A strong positive relationship was obtained between the tangibility dimension of service quality and customer loyalty ($\beta=0.23$, $t=6.40$, $p<0.01$). This implies that customer loyalty is strongly driven by tangibility. Specifically, about 5% ($0.23^2*100\%$) of the variance in customer loyalty is explained by tangibility. Therefore hypothesis 2 (**H2**) is supported in the present context. See table 4.5 for details.

4.4 CHAPTER SUMMARY

This study revealed that service quality is at the forefront of the management practices of telecommunication giants Vodafone and MTN. The most evident dimension of service quality practiced by the companies is tangibility; this is followed by reliability, responsiveness, empathy and assurance respectively.

The study revealed further that service quality is a key factor that influence customer loyalty in the Ghanaian telecommunication sector. Specifically, service quality positively and significantly affects customer loyalty. As a result, an improvement in the service delivery of the companies will significantly improve customer loyalty. Reliability was found to be the dimension with the most significant contribution to customer loyalty; this is followed by responsiveness, tangibility, assurance and empathy respectively.